OBJECT ORIENTED PROGRAMMING WITH JAVA 8– LAB 4

1. Build a class Emp which contain the following details about the employee and make an object in the main function and call the functions to set values and print values of the object.

a. Data Members

i. int empCode

ii. String name

iii. int basicPay

iv. float DA

v. float HRA

vi. float grossPay

b. Function members

i. to accept and set values for empCode, name, and basicPay

ii. to calculate grossPay

iii. to print values of the employee object

If basicPay < 3500 then DA is 45% of basicPay and HRA is 20% of basicPay.

If basicPay >=3500, then DA = 50% of basicPay and HRA is Rs 1000.

Find and print the grossPay = basicPay +DA+HRA.

Ans=

Code-

```
import java.util.Scanner;
class Emp
{
        int empCode;
        String name;
        int basicPay;
        float DA;
        float HRA;
        float grossPay;

        void setValues(int empCode, String name, int basicPay)
        {
         this.empCode=empCode;
         this.name=name;
         this.basicPay=basicPay;
        }
        void calGrossPay()
        {
                 if(basicPay < 3500)
                {
                 DA= (0.45f * basicPay);
                 HRA=(0.20f * basicPay);
                }
         else if(basicPay >= 3500)
                {
                 DA= (0.50f * basicPay);
                 HRA=1000;
                }
         grossPay = (basicPay + DA + HRA);
        }
```

```
         void printValues()
         {
          System.out.println(" EmpCode: " + empCode);
          System.out.println(" Name: " + name);
          System.out.println(" Basicpay: " + basicPay);
          System.out.println(" DA : " + DA);
          System.out.println(" HRA : " + HRA);
          System.out.println(" GrossPay : " + grossPay);
         }
          public static void main(String[] args)
         {
          Scanner P=new Scanner(System.in);

          System.out.println(" Enter empCode: ");
          int empCode = P.nextInt();
          P.nextLine();

          System.out.println(" Enter name: ");
          String name = P.nextLine();

          System.out.println(" Enter basicPay: ");
          int basicPay= P.nextInt();

         Emp Employee = new Emp();
         Employee.setValues(empCode, name, basicPay);

         Employee.calGrossPay();
         System.out.println("Employee Details: ");
         Employee.printValues();
         }
}
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 4 & Lab4\Answers>javac Emp.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 4 & Lab4\Answers>java Emp
 Enter empCode:
101
 Enter name:
Mahesh
 Enter basicPay:
2500
Employee Details:
 EmpCode: 101
 Name: Mahesh
 Basicpay: 2500
 DA : 1125.0
 HRA : 500.0
 GrossPay : 4125.0

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 4 & Lab4\Answers>java Emp
 Enter empCode:
102
 Enter name:
Prathmesh
 Enter basicPay:
4000
Employee Details:
 EmpCode: 102
 Name: Prathmesh
 Basicpay: 4000
 DA : 2000.0
 HRA : 1000.0
 GrossPay : 7000.0
```

2. Create a class named Book with data members title, author and price. Write a no argument constructor which initializes the instance variables with some default values and a parameterized constructor also to initialize variables with user input. Write a function for displaying the details. Create two objects for the class using two constructors and invoke the display function.

Ans=

Code-

```
import java.util.Scanner;
class Book
{
        String title;
        String author;
        double price;

        Book()
        {
         this.title = "Yatati";
         this.author="VS Khandekar";
         this.price=200;
        }
        Book(String title, String author, double price)
        {
         this.title = title;
         this.author= author;
         this.price = price;
        }
        void Details()
        {
         System.out.println("Title: " + title);
         System.out.println("Author: " + author);
         System.out.println("Price: " + price);
        }
        public static void main(String[] args)
        {
         Book b= new Book();
         System.out.println("Details of Book 1: ");
         b.Details();

         Scanner P=new Scanner(System.in);
         System.out.println("Enter Details of Book 2: ");

         System.out.println("Title: ");
         String title = P.nextLine();

         System.out.println("Author: ");
         String author = P.nextLine();

         System.out.println("Price: ");
         double price =P.nextDouble();

         Book b2= new Book(title, author, price);
         System.out.println("Details of Book 2: ");
         b2.Details();
         }
}
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 4 & Lab4\Answers>javac Book.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 4 & Lab4\Answers>java Book
Details of Book 1:
Title: Yatati
Author: VS Khandekar
Price: 200.0
Enter Details of Book 2:
Title:
Mritunjaya
Author:
Shivaji Sawant
Price:
149
Details of Book 2:
```

3. Create a class named Car with a default constructor which initializes the instance variable model with the value “Ford”. Write a parametrized constructor also to initialize model. Write a getModel() method to print the value of model. Create two objects for the class using two constructors and invoke the getModel()method.

Ans=

Code-

```
import java.util.Scanner;
class Car
{
        String model;

        Car()
        {
         this.model="Ford";
        }

        Car(String model)
        {
         this.model=model;
        }

        void getModel()
        {
         System.out.println("Model: " + model);
        }

        public static void main(String[] args)
        {
        Car c = new Car();
        System.out.println("Details of Car 1: ");
        c.getModel();

        Car c2 = new Car("Hyundai");
        System.out.println("Details of Car 2: ");
        c2.getModel();
        }
}
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 4 & Lab4\Answers>javac Car.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 4 & Lab4\Answers>java Car
Details of Car 1:
Model: Ford
Details of Car 2:
Model: Hyundai
```

4. Write a class with a static method that returns the maximum value of three given integers. Write another class with main method and call the static method to print the maximum value for a set of integer values.

Ans=

Code-

```
import java.util.Scanner;
class Max
{
        public static void main(String[] args)
        {
        Scanner P = new Scanner(System.in);

        System.out.print("Enter the Number1: ");
        int n1 = P.nextInt();

        System.out.print("Enter the Number2: ");
        int n2 = P.nextInt();

        System.out.print("Enter the Number3: ");
        int n3 = P.nextInt();

        int m = Math.max(Math.max(n1,n2),n3);

        System.out.println("Maximum value: " + m);
    }
}
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 4 & Lab4\Answers>javac Max.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 4 & Lab4\Answers>java Max
Enter the Number1: 15
Enter the Number2: 05
Enter the Number3: 98
Maximum value: 98

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 4 & Lab4\Answers>
```

5. Create a Java program to overload an add function that can add integer, float or double values and display the sum.

Ans=

Code-

```
import java.util.Scanner;
class Sum
{
        int add(int a, int b)
        {
         return a + b;
        }

        float add(float a, float b)
        {
         return a + b;
        }

        double add(double a, double b)
        {
         return a + b;
        }
        public static void main(String[] args)
        {
        Scanner P = new Scanner(System.in);

        System.out.print("Enter an integer: ");
        int int1 = P.nextInt();
        int int2 = P.nextInt();

        System.out.print("Enter a float: ");
        float float1 = P.nextFloat();
        float float2 = P.nextFloat();

        System.out.print("Enter a double: ");
        double double1 = P.nextDouble();
        double double2 = P.nextDouble();

        Adder a = new Adder();


        int sumInt = a.add(int1, int2);
        System.out.println("Sum of integers: " + sumInt);

        float sumFloat = a.add(float1, float2);
        System.out.println("Sum of floats: " + sumFloat);

        double sumDouble = a.add(double1, double2);
        System.out.println("Sum of doubles: " + sumDouble);
        }
}
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 4 & Lab4\Answers>javac Sum.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 4 & Lab4\Answers>java Sum
Enter an integer: 15
98
Enter a float: 5.0
7.5
Enter a double: 92.48
15.70
Sum of integers: 113
Sum of floats: 12.5
Sum of doubles: 108.18
```